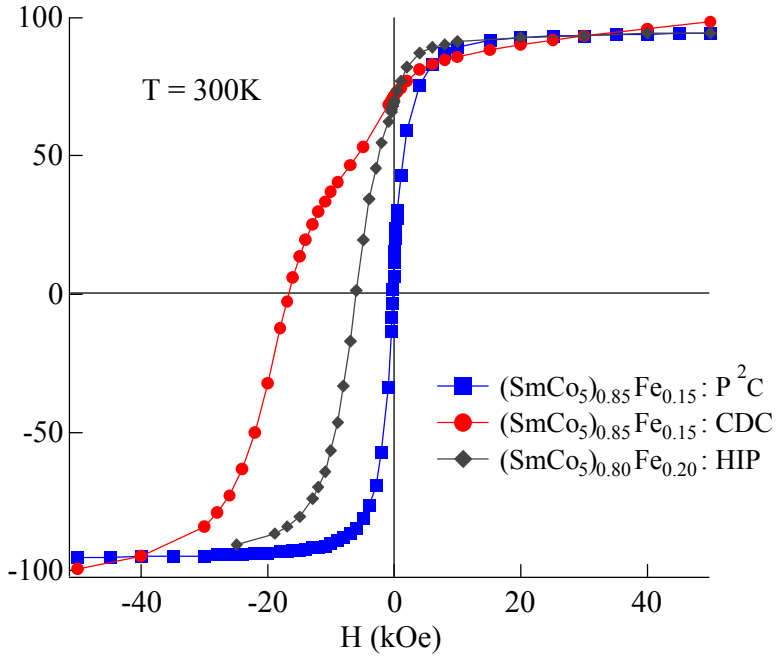
Coercivity of Magnetic Nanoparticles and Nanocomposites

Sara Majetich, Carnegie Mellon University, DMR-9900550



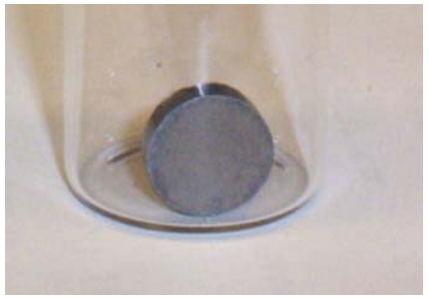
For samarium cobalt-containing nanocomposites , low temperature compaction is needed to prevent decomposition

The energy product for Combustion Driven Compaction, $(BH)_{max}$ of 31.5 MGOe

CDC: Combustion Driven Compaction (2 Gpa, 550 ms, "20°C", Utron, Inc.)

P^{2}C: Plasma Pressure Compaction (73 MPa, 5 min. 600 °C, Materials Modification, Inc.)

HIP: Hot Isostatic Pressing (435 kPa, 5 min, 550 °C)



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Education and Outreach:
Two undergraduates (Peter Abeles and Emilie Philips) and one graduate student (Krishna Chowdary) studied the AC magnetic properties of magnetic nanoparticles.

Emilie Philips entered graduate school at Cornell in the Fall of 2003. Peter Abeles is now working for Lockheed-Martin. Krishna Chowdary received the CMU graduate student teaching award, and now teaches physics at Bucknell University.

The Majetich research group and a future physicist (lower right).